

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
21 May 2004 (21.05.2004)

PCT

(10) International Publication Number  
**WO 2004/042457 A3**

(51) International Patent Classification<sup>7</sup>: **G02B 17/00,**  
G02F 1/15

A. [IE/US]; 16092 Ransom Street, Holland, MI 49424 (US). **VARAPRASAD, Desaraju** [US/US]; 1281 Innisbrook Court, Holland, MI 49423 (US). **HABIBI, Hamid** [IR/US]; 190 Standish, Holland, MI 49423 (US). **LYNAM, Niall, R.** [US/US]; 248 Foxdown, Holland, MI 49424 (US).

(21) International Application Number:  
**PCT/US2003/035381**

(74) Agents: **VAN DYKE, GARDNER, LINN & BURKHART, LLP et al.**; 2851 Charlevoix Drive SE P.O. Box 888695, Grand Rapids, MI 49588-8695 (US).

(22) International Filing Date:  
5 November 2003 (05.11.2003)

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
60/423,903 5 November 2002 (05.11.2002) US  
60/490,111 25 July 2003 (25.07.2003) US

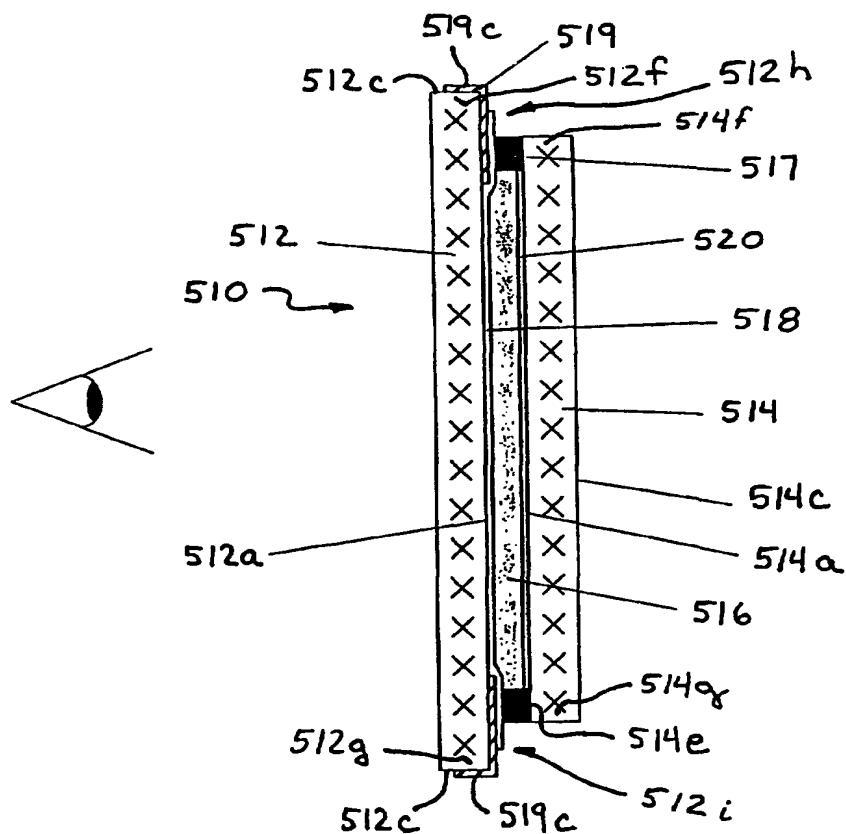
(71) Applicant (*for all designated States except US*): **DON-NELLY CORPORATION** [US/US]; 414 East Fortieth Street, Holland, MI 49423 (US).

(72) Inventors; and

(75) Inventors/Applicants (*for US only*): **MCCABE, Ian**,

[Continued on next page]

(54) Title: ELECTRO-OPTIC REFLECTIVE ELEMENT ASSEMBLY



(57) Abstract: An electro-optic reflective element assembly (510) includes a pair of substrates (512, 514) and an electro-optic medium (516) sandwiched therebetween. Each of the pair of substrates includes at least one conductive or semi-conductive layer (518, 520) disposed thereon. The electrical connections may electrically connect to a respective layer and may be electrically isolated from the other layer, such as via non-conductive regions (514e) of the substrates and/or deletion lines along one of the conductive layers. The pair of substrates may be positioned relative to one another such that overhang portions (512h, 512i) of the front substrate (512) extend beyond the corresponding edges of the rear substrate (514). The overlapping relationship may provide clearance for electrical connection to the conductive layers of the front and rear substrates such that the electrical connections are substantially not viewable through the front substrate.

WO 2004/042457 A3



(84) Designated States (*regional*): ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

— before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

(88) Date of publication of the international search report:  
5 August 2004

**Published:**

— with international search report

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US03/35381

**A. CLASSIFICATION OF SUBJECT MATTER**

IPC(7) : G02B 17/00; G02F 1/15  
US CL : 359/603, 604, 607, 608, 265-271

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 359/603, 604, 607, 608, 265-271

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched  
NONE

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
USPTO EAST

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5,668,663 A (VARAPRASAD et al) 16 September 1997 (16.09.1997), fig. 11C, column 21, line 56-column 23, line 38	1-40
Y	US 5,066,112 A (LYNAM et al) 19 November 1991 (19.11.1991), figs. 6 and 8, column 15, lines 1-11	1-40
Y	US 5,078,480 A (WARSZAWSKI) 7 January 1992 (07.01.1992) Fig. 18, column 54, line 55 - column 57, line 2	5, 25
A	EP 0356099 A2 (YAMADA et al) 28 February 1990 (28.02.1990) fig. 3	1, 21
A	US 4,773,740 A (KAWAKAMI et al) 27 September 1988 (27.09.1988). figure	1, 21
A	JP 362075619 A (TOMITA) 07 April 1987 (07.04.1987), fig. 3	1, 21

Further documents are listed in the continuation of Box C.

See patent family annex.

• Special categories of cited documents:	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E" earlier application or patent published on or after the international filing date	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L" document which may throw doubt on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&"	document member of the same patent family
"O" document referring to an oral disclosure, use, exhibition or other means		
"P" document published prior to the international filing date but later than the priority date claimed		

Date of the actual completion of the international search

02 April 2004 (02.04.2004)

Date of mailing of the international search report

27 MAY 2004

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, Virginia 22313-1450

Faxsimile No. (703) 305-3230

Authorized officer

Drew Dunn

Telephone No. (703) 305-4900